Amendments to the Claims:

Claim 1 (Currently amended): A system for performing wireless communications, comprising:

a broadcast transmitter configured to transmit broadcast information by employing wide-area FM subcarrier broadcasting on a predetermined schedule, wherein the broadcast information includes information for being conveyed on a user interface of a mobile device;

a localcast transmitter configured to transmit local information ~~by employing direct FM modulation~~ over a local area ~~link~~, wherein the local area is smaller than the wide area~~, wherein the local information is different than the broadcast information~~;

a peer-to-peer transmitter configured to transmit peer information ~~by employing FM modulation over a bi-directional link~~; and

a mobile device configured to:

receive the broadcast information when the mobile device is in a broadcast mode and convey the broadcast information to a user interface of the mobile device;

receive the localcast information when the mobile device is in a localcast mode and convey the localcast information to a user interface of the mobile device;

transmit localcast information when the device is in a localcast mode;

receive peer information when the device is in a peer-to-peer mode and convey the peer information to a user interface of the mobile device; and

transmit peer information when the device is in a peer-to-peer model.

~~a mobile device including a receiver and a transmitter, the receiver and transmitter being configured to communicate with the broadcast transmitter when in a broadcast mode, the localcast transmitter when in a localcast mode and a peer mobile device when in a peer-to-peer mode.~~

Claim 2 (withdrawn): A localcast transmitter, comprising:

a first interface;

an encoder coupled to said first interface;

a packet assembler coupled to said encoder;

a control function coupled to said first interface, said encoder and said packet assembler;

a modulator; and

an antenna.

Claim 3 (withdrawn): The localcast transmitter in claim 2, wherein the localcast transmitter is further comprised of a data source for a local area transmission system.

Claim 4 (withdrawn): The localcast transmitter in claim 2, wherein the first interface is further comprised of at least one of a USB-compatible interface, an RS-232 interface, and an IEEE-1394 interface.

Claim 5 (withdrawn): The localcast transmitter in claim 2, wherein the control function collects transmitted packets from a data source and performs handshaking functions.

Claim 6 (withdrawn): The localcast transmitter in claim 2, further comprising a second encoder.

Claim 7 (withdrawn): The localcast transmitter in claim 2, wherein the packet assembler further performs the steps of interleaving encoded system information into data segments; adding correlation information to said data segments; and converting said data segments into a bit stream.

Claim 8 (withdrawn): The localcast transmitter in claim 2, wherein the localcast transmitter is further configured to broadcast in a locally-unused portion of the FM band.

Claim 9 (withdrawn): The localcast transmitter in claim 2, further comprising a data source that is further comprised of a personal computer system.

Claim 10 (withdrawn): The localcast transmitter in claim 2, wherein the encoder is further comprised of a first convolutional encoder for system information.

Claim 11 (withdrawn): The localcast transmitter in claim 10, wherein the encoder is further comprised of a second convolutional encoder for data.

Claim 12 (withdrawn): A broadcast transmitter, comprising:

an input-output controller coupled to a first input interface and to a buffer memory;

a control processor coupled to said input-output controller and to a second input interface;

a precision time base coupled to said control processor;

an encoding engine coupled to said input-output controller, said control processor, and to a first memory; and

a subcarrier signal generator, coupled to said encoding engine, said control processor, a second memory, and to a subcarrier output.

Claim 13 (withdrawn): The broadcast transmitter in claim 12, wherein the control processor includes at least one of a microprocessor, microcontroller, programmable logic array, programmable gate array, and an ASIC.

Claim 14 (withdrawn): The broadcast transmitter in claim 12, wherein the input-output controller comprises a field-programmable gate array.

Claim 15 (withdrawn): The broadcast transmitter in claim 12, wherein the first input interface further comprises at least one of an RS-422 interface, an RS-232 interface, an IEEE-1394 interface, a USB interface, and an Ethernet interface.

Claim 16 (withdrawn): The broadcast transmitter in claim 12, wherein the second input interface further comprises at least one of an RS-232 interface an RS-422 interface, an RS-232 interface, an IEEE-1394 interface, a USB interface, and an Ethernet interface.

Claim 17 (withdrawn): The broadcast transmitter in claim 12, wherein the precision time base is comprised of a 1-ppm oscillator.

Claim 18 (withdrawn): The broadcast transmitter in claim 12, wherein the subcarrier signal generator is further comprised of a modulator, a digital-analog converter, and an output filter.

Claim 19 (withdrawn): The broadcast transmitter in claim 18, wherein the modulator is further comprised of a field-programmable gate array.

Claim 20 (withdrawn): A mobile device, comprising:

an antenna assembly;

a real-time component comprising:

a system timing function;

a real-time event dispatching function; and

a digital radio;

a digital control and processing circuit;

a microcomputer assembly;

a random access memory;

a nonvolatile memory; and

a microprocessor-controlled user interface.

Claim 21 (withdrawn): The mobile device in claim 20, wherein the mobile device is further configured to be worn on a person's wrist.

Claim 22 (withdrawn): The mobile device in claim 21, wherein the mobile device is further configured to display the current time.

Claim 23 (withdrawn): The mobile device in claim 20, wherein the mobile device is further configured to operate within a paging unit.

Claim 24 (withdrawn): The mobile device in claim 20, wherein the mobile device is further configured to operate within a cellular telephone.

Claim 25 (withdrawn): The mobile device in claim 20, wherein the mobile device is further configured to receive information content from a local-area transmitter and from a broadcast transmitter.

Claim 26 (withdrawn): The mobile device in claim 20, further comprising a transceiver.

Claim 27 (withdrawn): The mobile device in claim 26, wherein the mobile device is further configured to transmit and receive information from a second mobile device.

Claim 28 (withdrawn): The mobile device in claim 27, wherein the mobile device is further configured to transmit and receive information from a plurality of mobile devices.

Claim 29 (withdrawn): The mobile device in claim 20, wherein the mobile device is further configured to receive local information from a second mobile device.

Claim 30 (withdrawn): A method of re-broadcasting data transmitted over an FM subcarrier, comprising the steps of:

receiving at a localcast transmitter said transmitted data;

locally formatting said transmitted data for local-area wireless transmission; and

retransmitting said locally formatted data from said localcast transmitter to a local area.

Claim 31 (withdrawn): The method of claim 30, further comprising the step of adding local content information in said localcast transmitter to said locally formatted data for transmission over a local area.

Claim 32 (withdrawn): The method of claim 30, further comprising the step of adding application information in said localcast transmitter to said locally formatted data for broadcast over a local area.

Claim 33 (withdrawn): The method of claim 30, further comprising the steps of receiving said locally formatted data at a first mobile device; and retransmitting said locally formatted data from the first mobile device to a second mobile device.

Claim 34 (withdrawn): A method of encoding a data stream, comprising the steps of:

partitioning said data stream into a plurality of data packets at a transmission network center;

transmitting said data packets to a broadcast generator;

receiving said transmitted data packets at said broadcast generator;

writing said received data packets into an I/O memory of said broadcast generator;

reading a plurality of extracted data packets from said I/O memory in an order that differs from the order in which said received data packets arrived at said I/O memory block;

encoding said extracted data packets into encoded data streams; and

interleaving said encoded data streams into a plurality of interleaved data segments.

Claim 35 (withdrawn): The method of claim 34, further comprising the steps of:

determining whether a threshold amount of memory within said I/O memory has been filled by said received data packets; and

initiating encoding of said received data packets if said determination is affirmative.

Claim 36 (withdrawn): The method of claim 34, further comprising the steps of:

indicating, within each of said data packets whether each of said data packets requires lower-latency transmission time; and

modifying said interleaving based on whether said data packets require lower-latency transmission time.

Claim 37 (withdrawn): The method of claim 34, the encoding further comprising the steps of:

performing a bitwise-exclusive-OR between each bit of said extracted data packets and- each bit of a data pattern to produce a plurality of whitened data streams; and

convolutionally encoding said whitened data streams thereby producing said encoded data streams.

Claim 38 (withdrawn): A method of transmitting data, comprising the steps of:

receiving a data stream including a plurality of data packets, wherein at least some data packets are designated as intended to be transmitted with low-latency; and

interleaving said data packets over a frame except that the data packets designated as intended to be transmitted with low-latency are interleaved over a sub frame of the broadcast frame.

Claim 39 (withdrawn): The method of claim 38, wherein said sub frame is one-fourth of said broadcast frame.

Claim 40 (Currently amended): An apparatus for transmitting a signal in a wireless communications system including a data source, comprising:

a broadcast transmitter configured to transmit broadcast information to a device over a subcarrier channel to a wide area according to a first transmission format, wherein the broadcast information includes information for being conveyed on a user interface of a mobile device;

a localcast transmitter coupled to the data source and configured to transmit local information to a device over a local area ~~and in a locally-unused FM frequency~~ according to a second transmission format; ~~, wherein the second transmission format is different than the first transmission format, wherein the device is:~~

a mobile device configured to:

receive the broadcast information when the mobile device is in a broadcast mode and convey the broadcast information to a user interface of the mobile device;

receive the localcast information when the mobile device is in a localcast mode and convey the localcast information to a user interface of the mobile device; and

transmit localcast information when the device is in a localcast mode;

~~configured to receive transmitted data from the localcast transmitter and transmit data to the localcast transmitter;~~

~~further configured to transmit and receive data in a peer-to-peer mode; and~~

~~further configured to receive transmitted data from a wide-area broadcast transmitter.~~

Claim 41 (Currently amended): An apparatus for transmitting a signal in a wireless communications system including a data source, comprising:

a mobile device configured to:

receive broadcast information from a broadcast transmitter when the mobile device is in a broadcast mode and convey the broadcast information to a user interface of the mobile device, wherein the broadcast information is received over a subcarrier channel distributed to a wide area according to a first format;

receive localcast information from a localcast transmitter when the mobile device is in a localcast mode and convey the localcast information to a user interface of the mobile device, wherein the localcast information is received over a locally-unused FM frequency over a local area; and

transmit localcast information when the device is in a localcast mode;

~~receive data when in a broadcast mode and configured to receive and transmit data when in one of: a localcast mode and a peer-to-peer mode;~~

~~a broadcast transmitter configured to transmit to the device over a subcarrier channel to a wide area when the device is in a broadcast mode according to a first transmission format;~~

~~a localcast transmitter coupled to the data source and configured to transmit to and receive data from the device over a local area and in a locally unused FM frequency when the device is in a localcast mode according to a second transmission format, wherein the second transmission format is different than the first transmission format, wherein the device is configured to receive the data from the localcast transmitter and to transmit other data to the localcast transmitter; and~~

~~a peer device configured to communicate with the device over a local area and in a locally unused FM frequency when the device is in a peer-to-peer mode.~~

Claim 42 (Currently amended): An apparatus for performing wireless communications, comprising:

a mobile device configured to:

receive broadcast information from a broadcast transmitter when the mobile device is in a broadcast mode and convey the broadcast information to a user interface of the mobile device, wherein the broadcast information is received over a subcarrier channel distributed to a wide area according to a first format;

receive localcast information from a localcast transmitter when the mobile device is in a localcast mode and convey the localcast information to a user interface of the mobile device, wherein the localcast information is received over a locally-unused FM frequency over a local area;

receive peer information from a peer-to-peer transmitter when the device is in a peer-to-peer mode and convey the peer information to a user interface of the mobile device, wherein the peer information is received from a peer device over a local area;

transmit localcast information when the device is in a localcast mode; and

transmit peer information when the device is in a peer-to-peer mode.

~~a device configured to receive a wireless communication transmitted in a broadcast mode, wherein the broadcast mode includes data transmitted and received over an FM subcarrier channel in a first transmission format, the device being further configured to transmit and receive additional wireless communications transmitted in a localcast mode and a peer-to-peer mode in a second transmission format, wherein the second transmission format is different than the first transmission format, wherein the localcast mode and the peer-to-peer mode includes data transmitted and received over a locally unused FM channel.~~

Claim 43 (cancelled)

Claim 44 (previously presented): The system of claim 1, wherein the broadcast transmitter further comprises:

an input-output controller that is coupled to a first input interface and to a buffer memory;

a control processor that is coupled to the input-output controller and to a second input interface;

a precision time base that is coupled to the control processor;

an encoding engine that is coupled to the input-output controller, the control processor, and to a first memory; and

a subcarrier signal generator that is coupled to the encoding engine, the control processor, a second memory, and to a subcarrier output.

Claim 45 (previously presented): The system of claim 44, wherein the input-output controller is arranged to receive data from an uplink device via the first input interface.

Claim 46 (previously presented): The system of claim 44, wherein the control processor is arranged to accept periodic commands and control information from an uplink device via the second input interface.

Claim 47 (previously presented): The system of claim 44, wherein the precision time base is arranged to track a master time-base associated with an uplink device, whereby transmission delays are minimized.

Claim 48 (previously presented): The system of claim 44, wherein the encoding engine is arranged to process frames of data received from an uplink device to produce an output image for transmission.

Claim 49 (previously presented): The system of claim 44, wherein the subcarrier signal generator is arranged to receive an output image from the encoding engine and generate a subcarrier signal for transmitting the broadcast information over the subcarrier channel.

Claim 50 (previously presented): The apparatus of claim 42, wherein the localcast transmitter further comprises:

a first interface;
a control function that is coupled to the first interface;
an encoder that is coupled to the first interface and the control function;
processing logic that is coupled to the encoder and the control function;
a modulator that is coupled to the processing logic; and
an antenna.

Claim 51 (previously presented): The apparatus of claim 50, wherein the first interface is arranged to connect the localcast transmitter to its data source such that data packets are received by the localcast transmitter from the data source via the first interface.

Claim 52 (previously presented): The apparatus of claim 50, wherein the control function is arranged to collect data packets via the first interface, perform handshaking between the localcast transmitter and a data source, and set a desired transmission frequency, a mode, and a signal power.

Claim 53 (previously presented): The apparatus of claim 50, wherein the encoder is arranged to format data received from a data source as baseband samples, whereby encoding data for the localcast transmission is similar to encoding for broadcast transmission.

Claim 54 (previously presented): The apparatus of claim 50, wherein the processing logic is arranged to add correlation information for synchronization to audio samples received from the encoder.

Claim 55 (previously presented): The apparatus of claim 50, wherein the modulator is arranged to receive audio samples provided by the processing logic and produce an FM frequency output for transmitting data over a local area and in a locally-unused FM frequency.

Claim 56 (previously presented): The apparatus of claim 42, wherein the device configured to receive a wireless communication further comprises:

an antenna assembly;
a real-time component comprising:
a system timing function;
a real-time event dispatching function; and
a digital radio;
a digital control and processing circuit;
a microcomputer assembly;
a random access memory;
a nonvolatile memory; and
a microprocessor-controlled user interface.

Claim 57 (previously presented): The apparatus of claim 42, wherein the device is further arranged to transmit and receive information from a second mobile device.

Claim 58 (previously presented): The apparatus of claim 42, wherein the device is further arranged to receive information from a plurality of mobile devices and transmit data to a plurality of mobile devices.

Claim 59 (previously presented): The apparatus of claim 42, wherein the device is further arranged to receive wireless communications transmitted in a localcast mode from a second mobile device.

Claim 60 (previously presented): The apparatus of claim 42, wherein the device is further arranged to receive both the wireless communications transmitted in a localcast mode and the wireless communication transmitted in a broadcast mode using substantially the same circuitry.

Claim 61 (Currently amended): An apparatus for performing wireless communications, comprising:

a mobile device including an antenna assembly; a digital control and processing circuit; a microcomputer assembly; a random access memory; a nonvolatile memory; a microprocessor-controlled user interface; and a real-time component having a system timing function, a real-time event dispatching function, and a digital radio; and

the mobile device being configured to:

receive broadcast information from a broadcast transmitter when the mobile device is in a broadcast mode and convey the broadcast information to a user interface of the mobile device, wherein the broadcast information is received over a subcarrier channel distributed to a wide area according to a first format;

receive localcast information from a localcast transmitter when the mobile device is in a localcast mode and convey the localcast information to a user interface of the mobile device, wherein the localcast information is received over a local area;

receive peer information from a peer-to-peer transmitter when the device is in a peer-to-peer mode and convey the peer information to a user interface of the mobile device, wherein the peer information is received from a peer device over a local area;

transmit localcast information when the device is in a localcast mode; and

transmit peer information when the device is in a peer-to-peer mode.

~~a device configured to receive a wireless communication transmitted in a broadcast mode, wherein the broadcast mode includes data transmitted and received over an FM subcarrier channel in a first transmission format, the device being further configured to transmit and receive additional wireless communications transmitted in a localcast mode in a second transmission format, wherein the second transmission format is different than the first transmission format, wherein the localcast mode includes data transmitted and received over a locally unused FM channel, the device being further configured to transmit and receive communications transmitted in a peer to peer mode, wherein the device configured to receive a wireless communication further comprises:~~

~~an antenna assembly;~~

~~a real time component comprising:~~

~~a system timing function;~~

~~a real time event dispatching function; and~~

~~a digital radio;~~

~~a digital control and processing circuit;~~

~~a microcomputer assembly;~~

~~a random access memory;~~

~~a nonvolatile memory; and~~

~~a microprocessor controlled user interface.~~